BIOLOGICAL ASSESSMENT

Impacts of New Cut Dune/Marsh Restoration (TE-37) Project

on the

Threatened piping plover (*Charadrius melodus*)

Date: April 25, 2006

This Biological Assessment is submitted to the U.S. Fish and Wildlife Service (USFWS) by the U.S. Environmental Protection Agency, Region 6, to fulfill requirements of Section 7 of the Endangered Species Act Amendment of 1978.

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1.0 Introduction

In 1974, Trinity Island was breached during Hurricane Carmen, creating what is known as "New Cut". The cut is bordered on the north by Lake Pelto, on the west by Trinity Island, on the east by East Island and on the south by the Gulf of Mexico, in Terrebonne Parish, Louisiana. Subsequent storm events widened the breach in 1985, and again in 1992. The Environmental Assessment (EA) and Finding of No Significant Impact (FNSI) documents for New Cut Dune/Marsh Restoration (TE-37) project were issued for public notice on January 10, 2001, informal consultation with the U.S. Fish and Wildlife Service (USFWS) was completed on April 9, 2001, and a Statement of Findings (SOF) was issued on April 17, 2001. Phase 2 (construction) funding was approved at the January 2001 Louisiana Coastal Wetlands Conservation and Restoration Task Force meeting. Issues concerning the Wine Island Shoal borrow site delayed project construction.

Two Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) projects (TE-20 and TE-24) replenished Trinity Island and East Island. Subsequent to the completion of these two projects in 1999, long-shore sediment transport connected the islands by a narrow barrier spit, which is susceptible to breaching during storms because of its low elevation. The current elevation of the New Cut dune platform is 3-4 feet, while elevations of Trinity Island and East Island are 7-8 feet. A new borrow site in the Gulf of Mexico has been identified. It has now become necessary to modify the project footprint from that originally proposed in 2001 to respond to changing conditions in this dynamic environment. Additionally, the present project design will repair a breach on the eastern end of East Island near the Stone Energy platform (see Figure 1).

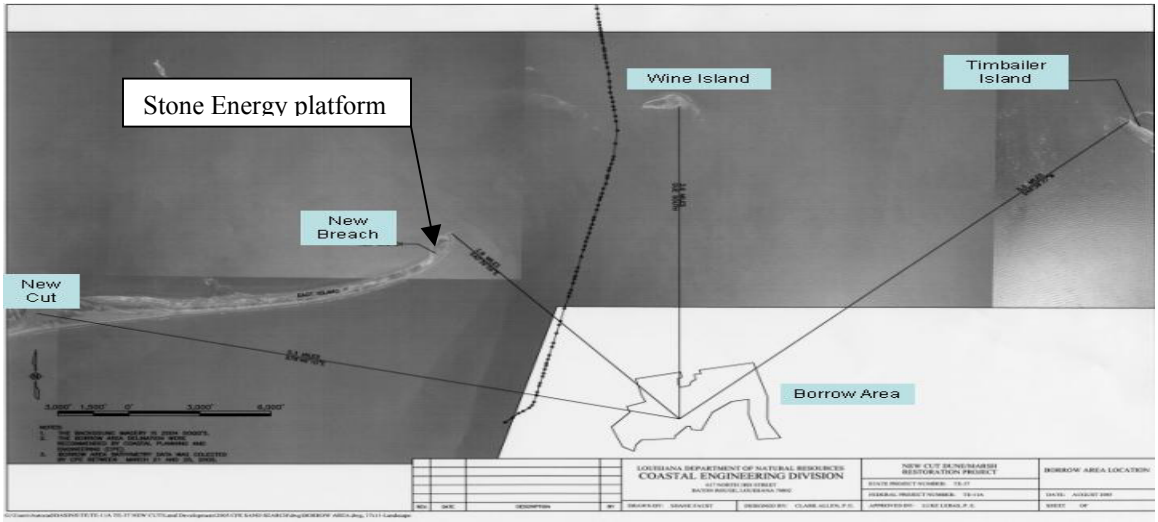

Figure 1: New Cut Dune/Marsh Restoration Project TE-37

This Biological Assessment (BA) addresses the impacts and benefits on the threatened piping plover and its designated critical habitat that may be affected by the proposed TE-37 project, herein referred to as New Cut. It is submitted to the USFWS by the U.S. Environmental Protection Agency (EPA), Region 6, to fulfill requirements of Section 7 of the Endangered Species Act Amendment of 1978. This assessment is based on conversations and correspondence with knowledgeable persons, a review of published literature, the results of on-site inspections, an analysis of the likely effects of the action on the piping plover and its designated critical habitat found in the area, and a determination of whether the proposed project is "likely (or not likely) to adversely affect" this species, or its designated critical habitat.

2.0 Project Description

The purpose of the project approved in 2001 was to close the breach between Trinity and East Islands through the direct creation of beach, dune, and marsh habitat. It is anticipated that in addition to restoring critical barrier island habitat and providing storm protection, the closure of New Cut will also benefit adjacent beaches along East Island and Trinity Island by restoring the littoral drift system along the eastern Isle Dernieres.

The project designed in 2001 (see Figure 2) included creation of a 150 feet sacrificial beach with an elevation of +2.0 feet NAVD 88 (North American Vertical Datum of 1998), built on the gulf side. At that time, the designed dune elevation of +8.0 feet NAVD 88 would match up with the existing dune elevations on East and Trinity Islands. Dunes were designed to have a top width of 300 feet and 1 to 15 side slopes. The marsh platform had a width of 700 feet with elevations of +4.0 feet NAVD 88 at the dune and slope back to +2.0 feet NAVD 88 on the bay side. Sand fencing and native barrier island vegetation were part of the original design features.

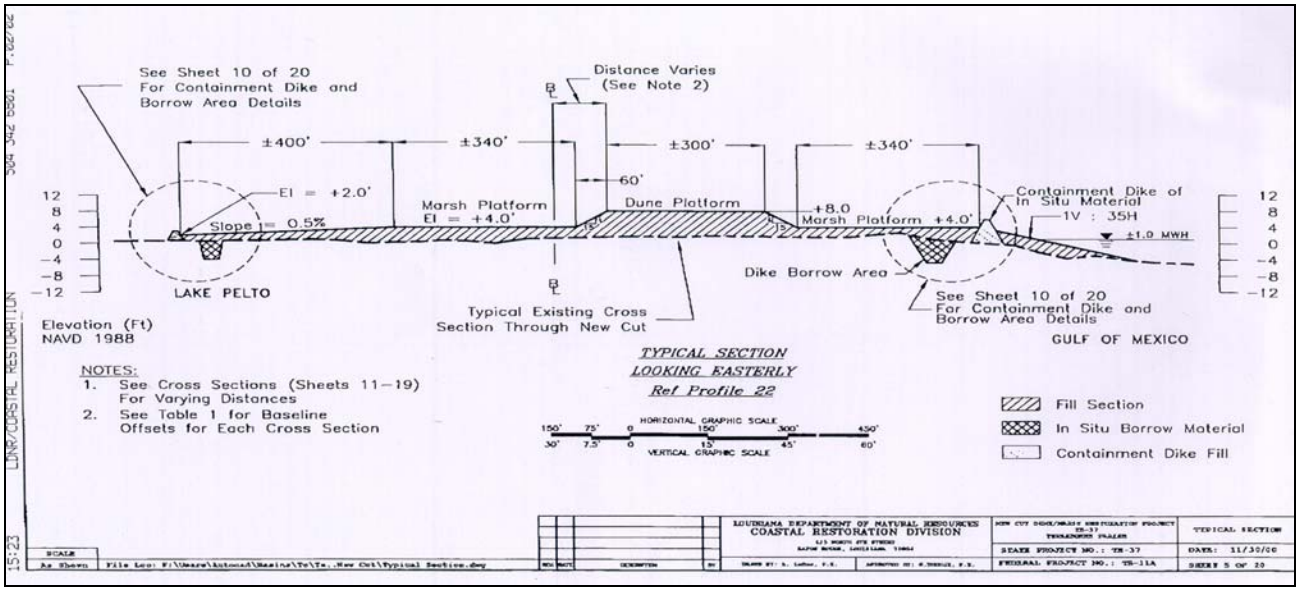

Figure 2: 2001 New Cut Typical Section

As mentioned previously, local concerns regarding the borrow site resulted a delay in constructing the project while a search for a new borrow site was performed. The project was redesigned in 2005 due to changing field conditions, not unexpected in the dynamic barrier island environment. The restoration strategy remains the same, closing the breach between Trinity and East Islands by introducing additional sediment. The major change since the 2001 design is that the borrow area has been relocated from Wine Inland Shoal to an offshore site.[1] The proposed borrow site is situated in the Gulf of Mexico, located approximately three miles south of Wine Island, in South Timbalier Block 9 and Block 10. The borrow area is located in 12 to 19 feet of water, which is well outside the depth of closure of ten feet. This is a vast improvement from the 2001 design where an ebb shoal was targeted. Mining an ebb shoal typically results in a sediment sink being formed, thereby decreasing the available sediment transported to down-drift beaches.

The typical section (see Figure 3) has been slightly modified to fit the current topography. The gulf-side containment has been removed since the area has accreted and is now emergent land. The extent of the gulf side berm has been reduced because portions of the fill area have naturally accreted to, or near the design elevation of +4.0 feet NAVD 88. The marsh creation slope has been modified from 400 feet wide sloping from a +2.0 feet NAVD 88, to 400 feet sloping to natural ground. The western end of the island near California Canal has been included in the design template.

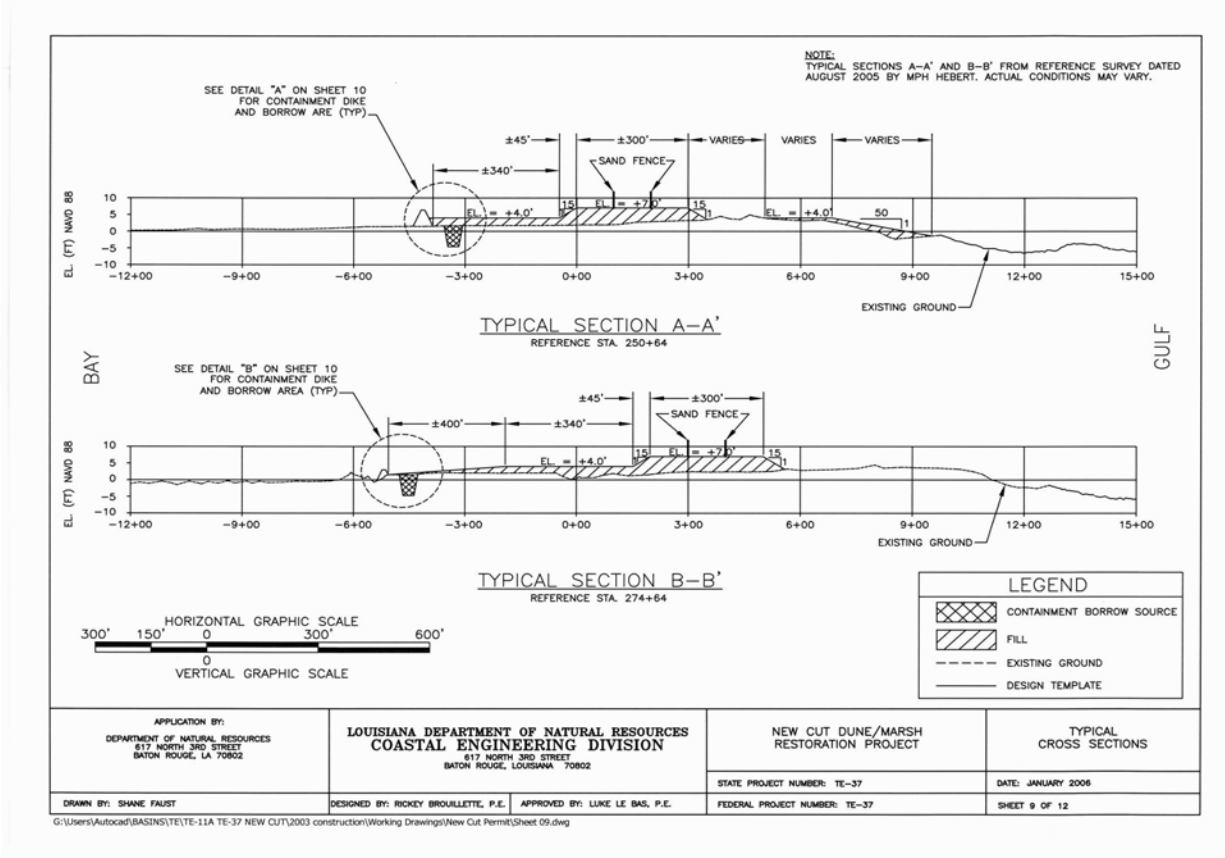

Figure 3: 2005 New Cut Typical Section

[1] Coastal Engineering Division, Louisiana Department of Natural Resources. 2005

As originally proposed in 2001, the project will be planted with species similar to plantings on East and Trinity Islands such as bitter panicgrass (*Panicum amarum*) and marshhay cordgrass (*Spartina patens*). Sand fencing will be installed to help capture and retain wind-blown sand. Repair of a small breach near the Stone Energy platform near the eastern end of East Island has been added, if funds are available. The repair will consist of a single discharge point with a maximum elevation of the adjacent area.

2.1 New Cut Project Area

The New Cut project area would restore approximately 8,000 linear feet (l-ft) of barrier island between Trinity Island and East Island, using approximately 830,650 cubic yards (cy) of sand, 7,500 l-ft of containment dike, and 17,050 l-ft of sand fencing. Seeding of 55 acres is planned. Portions of the fill area have naturally accreted towards the design elevation of +4.0 NAVD 88, reducing the extent of the gulf side berm.

The typical cross section will include the Gulf side beach that will extend 340 feet seaward from the toe of the dune platform to an earthen containment dike and will have an elevation of +4.0 feet NAVD 88. The 300 feet wide dune platform at an elevation of +7.0 feet NAVD 88 is to provide storm protection to Lake Pelto during hurricanes. The dune will connect the existing dune features of East and Trinity Islands. The Barrier Flat extends approximately 340 feet at an elevation of +4.0 feet NAVD 88, and the marsh platform extends 400 feet sloping to natural ground.

2.2 East Island Project Area

The East Island portion of the proposed project would replace approximately 970,000 cy of beach fill; 4,400 l-ft of sand fencing; and, 15 acres of seeding. The East Island project will only be constructed if funds are available.

Additional details of the design features and the proposed vegetative plantings can be found in the design report and the final plans and specifications.

3.0 Piping Plover (*Charadrius melodus*)[2]

3.1 Federal Status

The piping plover was federally listed as endangered in the Great Lakes watershed, and as threatened elsewhere in its range on January 10, 1986. The final rule designating critical habitat for the **wintering population** of the piping plover was published in the Federal Register on Tuesday, July 10, 2001 (Federal Register/Vol. 66, No. 132). Critical habitat is a term used in the Endangered Species Act (Act) that refers to specific geographic areas that contain habitat features essential for the conservation of a threatened or endangered species. These areas may require special management

[2] This information was gathered from several sources and combined into general descriptions and characterizations in terms usually more common to the general public. Sources of information used in the species descriptions were the U.S. Fish and Wildlife Service, the Nature Conservancy, the Audubon Society, Center for Biological Diversity, Texas Department of Parks and Wildlife, and Louisiana Department of Wildlife and Fisheries.

considerations or protection for the species. The TE-37 project is located within Unit LA-4.

3.2 Description

Piping plovers are small shorebirds approximately seven inches long with sand-colored plumage on their backs and crown and white underparts. Breeding birds have a single black breastband, a black bar across the forehead, bright orange legs and bill, and a black tip on the bill. During winter, the birds lose the black bands, the legs fade to pale yellow, and the bill becomes mostly black.

3.3 Habitat

Piping plovers feed extensively on intertidal beaches, mudflats, sand flats, algal flats, and wash-over passes with no or very sparse emergent vegetation; they also require unvegetated or sparsely vegetated areas for roosting. Roosting areas may have debris, detritus, or micro-topographic relief offering refuge to plovers from high winds and cold weather. In most areas, wintering piping plovers are dependent on a mosaic of sites distributed throughout the landscape, because the suitability of a particular site for foraging or roosting is dependant on local weather and tidal conditions. Plovers move among sites as environmental conditions change. The primary constituent elements for piping plover wintering habitat are those habitat components that support foraging, roosting, and sheltering and the physical features necessary for maintaining the natural processes that support those habitat components. Constituent elements are found in geologically dynamic coastal areas that contain intertidal beaches and flats (between annual low tide and annual high tide), and associated dune systems and flats above annual high tide. Important components (or primary constituent elements) of intertidal flats include sand and/or mud flats with no or very sparse emergent vegetation. Adjacent unvegetated or sparsely vegetated sand, mud, or algal flats above high tide are also important, especially for roosting plovers.

3.4 Distribution

According to the last breeding census in 1996, the Northern Great Plains population is the largest of the three breeding populations, numbering approximately 1,398 breeding pairs. The Atlantic Coast population consists of 1,372 breeding pairs, and the Great Lakes population was has only 32 breeding pairs. The highest concentration of birds reported in winter censuses are found in Texas, Louisiana, and Florida. However, only 63 percent of the breeding birds counted in 1991 was reported during the winter census, suggesting that important wintering areas are still unknown.

A study of 48 wintering piping plovers in south Texas found a mean home range size of 3,117 acres, with a mean distance moved per individual of approximately 2 miles (Drake 1999). The Louisiana Natural Heritage Program (LNHP) has periodically conducted surveys for piping plovers throughout their range and has documented plovers on the east end of Trinity Island during each of those surveys (i.e., 1988: 34 individuals; 1991: 29 individuals; 1992: 57 individuals; and 1996: 45 individuals reported for east and west ends of Trinity) and on East Island during the 1996 (29 individuals) survey. Individual piping plovers are known to return to the same wintering sites year after year (Nicholls

and Baldassarre 1990, Drake 1999) and are expected to be present in the project area in the winter.

3.5 Breeding and Reproduction

Piping plovers breed only in North America in three geographic regions: the Atlantic Coast, the Northern Great Plains, and the Great Lakes. Atlantic Coast plovers nest on coastal beaches, sandflats at the ends of sand spits and barrier islands, gently sloped foredunes, sparsely vegetated dunes, and washover areas cut into or between dunes. Plovers in the Great Plains make their nests on open, sparsely vegetated sand or gravel beaches adjacent to alkali wetlands, and on beaches, sand bars, and dredged material islands of major river systems. Great Lakes piping plovers breed on sparsely vegetated beaches, cobble pans, or sand spits of sand dune ecosystems along the Great Lakes shorelines. Piping plovers from all three breeding populations winter along South Atlantic, Gulf Coast, and Caribbean beaches and barrier islands, primarily on intertidal beaches with sand and/or mud flats with no or very sparse vegetation.

Plovers arrive on the breeding grounds during mid-March through mid-May and remain for 3 to 4 months per year. They lay 3 to 4 eggs in shallow scraped depressions lined with light colored pebbles and shell fragments. The eggs are well camouflaged and blend extremely well with their surroundings. Both sexes incubate the eggs that hatch within 30 days, and both sexes feed the young until they can fly, about 30 days after hatching.

3.6 Wintering

Plovers depart for the wintering grounds from mid-July through late October. They may be present in Louisiana for 8 to 10 months, arriving from the breeding grounds as early as late July and remaining until late March or April. Breeding and wintering plovers feed on exposed wet sand in wash zones; intertidal ocean beach; wrack lines; washover passes; mud-, sand-, and algal flats; and shorelines of streams, ephemeral ponds, lagoons, and salt marshes by probing for invertebrates at or just below the surface. Their diet consists of marine warms, flies, beetles, spiders, crustaceans, mollusks, and other small marine animals and their eggs and larvae, and fish eggs that wash ashore. They feed most aggressively during the falling tide, when the availability of exposed mud flats is greatest. They use beaches adjacent to foraging areas for roosting and preening. Small sand dunes, debris, and sparse vegetation within adjacent beaches provide shelter from wind and extreme temperatures.

3.7 Reasons for Decline

In recent decades, piping plover populations have drastically declined, especially in the Great Lakes. Breeding habitat has been replaced with shoreline development and recreation. Availability of quality foraging and roosting habitat in the wintering grounds is necessary in order to ensure that an adequate number of adults survive to migrate back to breeding sites and successfully nest.

4.0 Assessment of Impacts (Take)

A Take of listed species is defined in the Endangered Species Act and implementing regulations as the act or attempted act of pursuing, hunting, shooting, wounding, killing, trapping, capturing, collecting, harming, or harassing. Harm and harass are defined as the act of disturbing individuals or modifying habitat to the extent that wildlife are actually killed or injured by impairment of essential behavioral patterns such as breeding, feeding, or sheltering.

The potential for a Take is highly unlikely. Controls will be implemented to ensure that the project activities are conducted first to avoid, and otherwise to minimize, the potential affects on the piping plover. Examples include identifying and marking habitat areas for avoidance; planning project implementation to minimize the potential for any effects; use of qualified inspectors with authority to alter a project in areas with species related concerns; and adjusting project timing to avoid periods of activity. Thus, any potential adverse effects will be avoided or minimized. The end result is that the potentially affected piping plover will benefit by conservation efforts on a scale greater than any likely incidental Take. In addition, there is an abundance of suitable habitat (including designated critical habitat) in proximity to the proposed project area. If the proposed work activities occur when wintering piping plovers are present and utilizing the project area, the birds would likely disperse to those nearby suitable habitats. Once construction is complete, the birds would be able to return to the project area. Therefore, displacement of wintering piping plovers would be temporary in nature and is not likely to adversely affect the species.

5.0 Impact Analysis

Critical habitat may be adversely affected when the proposed action affects the ability of the primary constituent elements to support foraging, roosting, and sheltering, or the physical features necessary to maintain the natural processes that support those elements. The availability of quality foraging and roosting habitat (primary constituent elements) in the wintering grounds is necessary in order to ensure that an adequate number of adults survive to migrate back to breeding sites and successfully nest. Now that construction plans are being finalized, the issue of destruction of this newly created[3] piping plover habitat or that, which presently exists, must be considered.

5.1 Barrier Island Degradation and Habitat

Barrier islands serve as natural storm protective buffers and provide protection to Louisiana's coastal wetlands, bays, and estuaries, by reducing wave energies at the margins of coastal wetlands, thereby limiting erosion. In addition, barrier islands limit storm surge heights and retard saltwater intrusion. The historic rates of land loss for Louisiana's barrier islands are varied, and can average as high as 50 acres per year, over several decades.

[3] The narrow barrier spit, which connects East Island and Trinity Island.

5.1.1 New Cut Area

Post-Katrina/Rita piping plover habitat classes and the change that should occur after construction of the proposed project at New Cut is depicted in Figure 4 below.

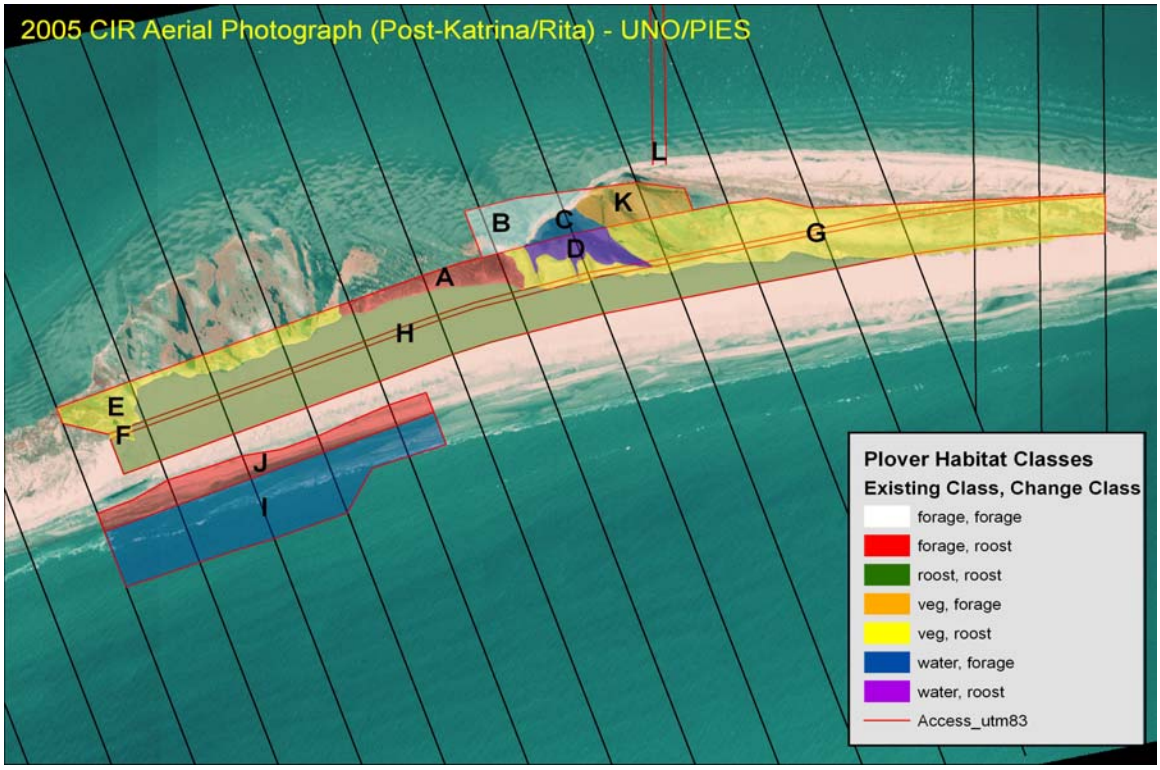

Figure 4: New Cut - Habitat Classes - Existing and Proposed Change after Construction

Table 1 provides the habitat acreage for the noted areas A through L.

Table 1: New Cut - Habitat Acreage - Existing and Proposed Change after Construction

Label	class	change	habitat	Hab_change	area	Area (acres)
A	forage	roost	intertidal	supratidal	20904.64466020000	5.17
B	forage	forage	intertidal	intertidal	21819.58457740000	5.39
C	water	forage	intertidal	intertidal	7110.96477371000	1.76
D	water	roost	intertidal	supratidal	14895.08212300000	3.68
E	veg	roost	intertidal	supratidal	35884.65680560000	8.87
F	veg	roost	supratidal	supratidal	1219.94545620000	0.30
G	veg	roost	mixed	supratidal	157880.88490300000	39.01
H	roost	roost	supratidal	supratidal	215515.36063200000	53.25
I	water	forage	subtidal	intertidal	110561.06729300000	27.32
J	forage	roost	intertidal	supratidal	43524.02915240000	10.75
K	veg	forage	intertidal	intertidal	20845.11505910000	5.15
L	forage	forage	intertidal	intertidal	1052.456069	0.26
Total						160.92

For the New Cut project area, the project will provide an additional 68 acres of roosting habitats for the piping plover. However there is a 4-acre loss of foraging habitat

immediately after construction, which is minor considering long-term effects of not constructing the project. After 5 years, there will be no foraging habitat, and a loss of 17 roosting acres (see Table 2).

Table 2: New Cut - Foraging and Roosting Habitat: Pre- and Post- Construction

Habitat	New Cut Project Area Footprint		
	Pre-Construction Acres	Post-Construction Acres	Net Acres
Usable Foraging	22	18	-4
Usable Roosting	53	121	68
Non-use	86	22	
5-year Foraging	11	11	0
5-year Roosting	27	10	-17
Non-use	123	140	

Over time with the project, 62 acres of dune, all intertidal, and 80% of back barrier berm (+4.0 feet) would become non-used habitat through vegetation colonization, but 11 acres of beach would erode to forage habitat during this time. Without the project, 50% of existing forage and sheltering habitat would become non-used habitat due to continued overwash accretion and vegetation colonization.

5.1.2 East Island Area

Figure 5 below depicts the post-Katrina/Rita piping plover habitat classes and the change that should occur after construction of the proposed project at East Island.

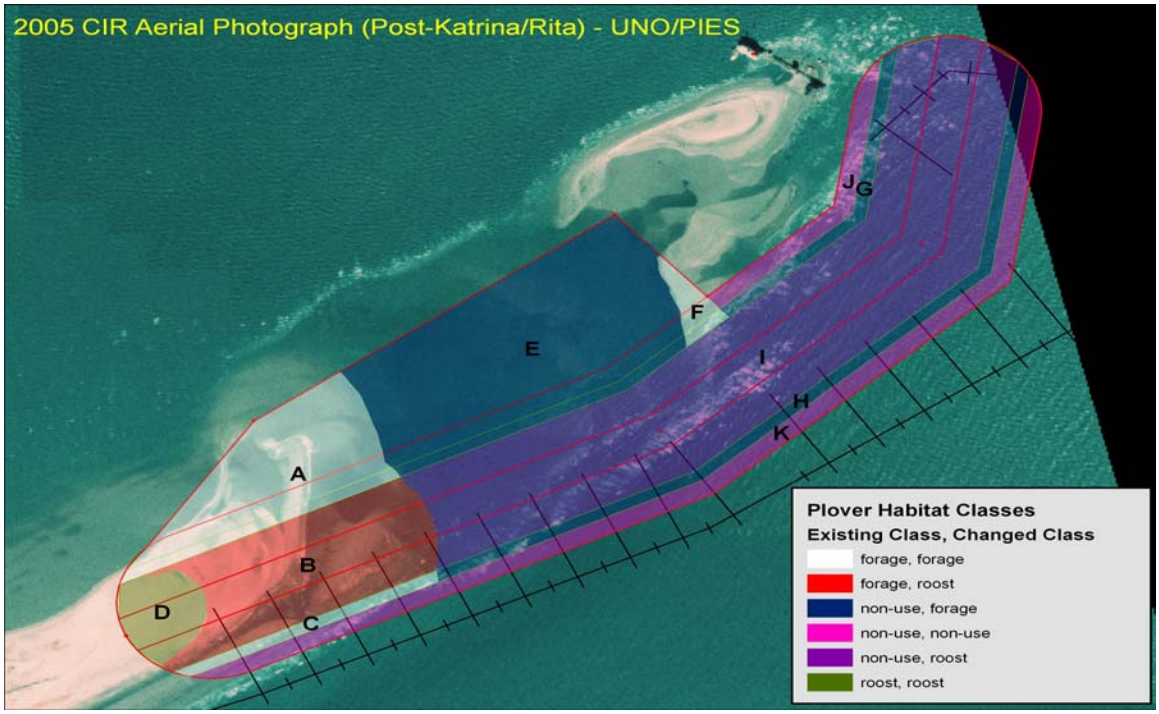

Figure 5: East Island - Habitat Classes - Existing and Proposed Change after Construction

Table 3 provides the habitat acreage for the noted areas A through K.

Table 3: East Island - Habitat Acreage - Existing and Proposed Change after Construction

Label	hab_class	chg_class	Elv_change	Elv_class	Area	Area (acres)
A	forage	forage	intertidal	intertidal	30888.13	7.63
B	forage	roost	supratidal	intertidal	35496.85	8.77
C	forage	forage	intertidal	intertidal	4239.23	1.05
D	roost	roost	supratidal	supratidal	8450.74	2.09
E	non-use	forage	intertidal	subtidal	64465.16	15.93
F	forage	forage	intertidal	intertidal	3332.05	0.82
G	non-use	forage	intertidal	subtidal	5733.29	1.42
H	non-use	forage	intertidal	subtidal	13717.65	3.39
I	non-use	roost	supratidal	subtidal	116041.65	28.67
J	non-use	non-use	subtidal	subtidal	7776.71	1.92
K	non-use	non-use	subtidal	subtidal	26145.17	6.46
Total						78.16

For the East Island project area, an additional 12 acres of foraging and 37 acre of roosting habitat will be provided immediately after construction. After 5 years, there will still be 18 acres of foraging habitat and 20 roosting acres (see Table 4).

Table 4: East Island - Foraging and Roosting Habitat: Pre- and Post- Construction

Habitat	New Cut Project Area Footprint		
	Pre-Construction Acres	Post-Construction Acres	Net Acres
Usable Foraging	18	30	12
Usable Roosting	2	40	37
Non-use	58	8	49
5-year Foraging	0	18	18
5-year Roosting	9	20	20
Non-use	78	40	-38

Over time with the project, 40% of forage habitat is lost to erosion, overwash sands, and vegetation colonization, and 50% of roosting is lost to shoreline erosion, vegetation colonization, and overwash. With out the project 100% of existing forage and sheltering habitat would become non-used habitat due to continued erosion and movement of the sand spit outside the project footprint.

5.1.3 Combined Projects Area

After construction, there is a total net increase of 8 acres of foraging habitat and a net increase of 105 acres of roosting habitat. Five years after construction, there is a net increase of 18 acres of foraging habitat and a net increase of 3 acres of roosting habitat.

5.2 Water Quality - Turbidity

The project area is located in the Terrebonne Basin at the saline/brackish end of the Terrebonne estuary. There is no fresh surface water on the islands. Isles Dernieres is in subsegment 1208 of the Terrebonne Basin. One of the standards that apply to this area is turbidity, 50 nephelometric turbidity units (NTU). The coastal waters are naturally very turbid due to the considerable amount of suspended sediments derived from freshwater inflows and coastal erosion. The turbidity standard that applies to this area would probably be exceeded. The islands are 40 to 50 miles removed from significant sources of inland freshwater pollution such as fecal coliform bacteria. There are no existing water quality problems apparent. If the proposed project is not built, this deterioration of the island could potentially contribute to an increase of turbidity in the Terrebonne estuary. These conditions could occur due to increased wave energies causing greater erosion and formation of erosive, high-energy tidal surges connecting higher salinity waters of the Gulf of Mexico to interior bay waters. Building the proposed project would have no long-term adverse impact on present conditions. However, temporary impacts due to increased turbidity from dredging and placement of material in the breach between East Island and Trinity Island could occur during project construction. It is expected that turbidity levels would return to normal shortly after construction ended. Long-term benefits may occur due to the decreased likelihood of higher wave energies causing greater erosion around interior bay waters.

Plovers are visual predators. However they forage along the water's edge and not in the water, thus turbidity would have minimal impact on their ability to forage. The turbid water would not obscure the prey of the piping plover. Louisiana coastal waters are naturally turbid so organisms that live here are generally well adapted to high turbidity. Therefore, we believe that turbid waters will not adversely affect piping plovers foraging for food.

5.3 Available Intertidal Habitat – Isles Dernieres and Timbalier Islands

Based on our experience with prior island reconstruction and repair in the Isles Denieres chain, we fully expect that the next several storm seasons will re-sculpt and redistribute sand to naturally reform somewhat extensive sand bars and flats that mimic current habitat formed with CWPPRA-placed sand in the East and Trinity Islands projects. In the meantime, the New Cut project construction will not completely eliminate available piping plover critical habitat in the area. Adjacent reconstructed islands provide considerable intertidal flats and sand bars that are used by this species. It is simply a matter of less than ideal habitat that will exist over the next several years until the wave and winds have redistributed sands as the island re-stabilizes itself in this dynamic environment. We expect that habitat would be fully restored, and further, that it would have some much longer predictable life so that, over time, the species would be benefited rather than adversely impacted by this project. Approximately 1,394 acres of intertidal habitat exists on the Isles Dernieres and Timbalier islands (See table 5).

Table 5: Intertidal Habitat

Islands	Intertidal Acres
Trinity and East Islands	442
Whiskey Island	270
Timbalier Island (TE-40 project area)	141
Timbalier Island eastern end	143
Rest of Timbalier Island	150
Raccoon Island	248
Total	1,394

It is important to understand the holistic benefits to the overall health of the near coastal water habitat. As an example, menhaden are an important fish species and provide forage material by spawning in deeper water (approximately 60 feet depth) and the eggs float coastward until the eggs reach the estuaries where they hatch. Eggs that float to the barrier islands potentially become part of the diet for piping plovers. Eggs reaching the estuaries hatch and live their larval stage development within the estuaries before moving into the near coastal waters to mature and eventually spawn in the deeper waters of the Gulf. Repairing the barrier island allows for greater protection of the estuaries from storm surge, continuous erosion from wave action and other associated detrimental effects caused be cause of the lack of barrier islands. Thus the repair of the barrier islands helps protect larval menhaden, which provide for forage materials in the form of menhaden eggs in subsequent years. In this respect the repair of barrier islands protects many species, such as menhaden, that help to provide a diverse and abundant source of food for plovers preparing for their long flight back to the nesting areas of the Great Lakes and the Midwest.

5.4 Potential Benefits

On a larger, long-term scale, the addition of sand to form a more stable dune and platform in the New Cut area, adds to the probability of the long-term availability of wintering grounds for the piping plover habitat in the Isles Dernieres chain. A strong case could be made that if the project were not constructed; storm impacts to the area would destroy critical piping plover habitat, which currently exist. It is critical at this point to recognize that adding sustainability to this island chain is what will ensure that critical wintering habitat remains for those creatures requiring intertidal mud flats and sand bars. Without such construction, comparable to that successfully completed on adjacent reaches and islands (i.e., Timbalier Island), these islands, including the intact intertidal habitat in the New Cut area, could be lost within a matter of years.

As a result of our two previous restoration CWPPRA projects, East Island evolved from expected disappearance date of 2016 to 2041 (+25 yrs) and Trinity transitioned from 2012 to 2020 (+8 yrs) for a total of an additional 33 yrs of primary constituent elements of plover habitat. New Cut would be expected to add additional life to Unit LA-4 as the others two projects did.[4] This project is "not likely to adversely affect critical habitat" due to the fact that the adverse impacts are discountable (i.e. - not likely to occur). In

[4] Penland, S., P. Connor, F. Cretini, and K. Westphal. 2003.

other words we will affect plover habitat in the short-term (5 yrs), but the overall effects of adding sand to the islands will extend plover habitat availability (longevity) to offset these minor adverse impacts in the short-term (adverse impacts are discountable - not likely to occur as birds move in the area as conditions change [we affect less than 1% of primary constituent elements for Unit LA-4] and overall longevity of primary constituent elements is extended).

5.5 Unavoidable Adverse Effects

The primary unavoidable adverse effects are the immediate impacts from construction related sediment excavation and deposition on the non-mobile benthic organisms in the areas; and, minor and temporary disturbance to adjacent wetlands, water, and air quality. The effects on air quality and the noise generated by the proposed project will be of a temporary nature. The irreversible and irretrievable commitment of resources would be labor, materials, wear on machinery, monies spent, and energy expended for implementation of the restoration action. Because the project is a restoration action, the social and environmental benefits of the proposed project are considerably greater than the environmental impacts and irretrievable commitment of resources identified in this document. The proposed project will eliminate the identified risks of taking no action.

5.6 Minimization and Avoidance

It is EPA's intent to minimize and/or avoid adverse impacts to the piping plover and its designated critical habitat to the extent practicable. The contractor will, to the extent reasonably possible, conduct the construction activities in a manner that avoids potential effects to the piping plover and its critical habitat. If avoidance is reasonably and practically unachievable, the contractor will conduct the activities in a manner that minimizes any potential effects. Controls and other measures designed to achieve that goal are summarized as follows:

- Identifying and marking habitat areas for avoidance;
- Pre-construction biological survey;
- Planning project implementation to minimize the potential for any effects;
- Use qualified environmental inspectors with authority to alter project implementation procedures in sensitive areas;
- Adjusting project timing to avoid piping plovers; for example, piping plovers may be present in Louisiana for 8 to 10 months, arriving from the breeding grounds as early as late July and remaining until late March or April. Construction activities from April through late July should avoid disturbing the piping plovers; and,
- Maintaining qualified biologists in the project areas for immediate response in the event a sighting occurs both during construction and future operation and maintenance work.

Biological surveys of the habitat areas will be conducted prior to construction to determine the presence or absence of species and specific location if present. Avoidance and minimization procedures, as appropriate to protect the species, will be implemented based on these surveys. In the event additional money remains at project completion, this money shall be used to create additional intertidal habitat behind the island. Should

construction activities consume the budget before project completion, then the elevation of the back platform will be reduced.

6.0 Recommendations

We recommend constructing the proposed project (TE-37). Any impacts to the piping plover or its designated critical habitat are at best short-term, but not likely to adversely affect the species or its critical habitats. Any effects that may occur are discountable due to the limited size, shore-term nature, and overall long-term benefits to piping plover critical habitat.

7.0 Conclusions

We believe the proposed project (TE-37) as cited in this assessment is not likely to: (1) adversely affect listed species or designated critical habitat; (2) jeopardize the continued existence of any listed species; or, (3) adversely modifies designated critical habitats.

8.0 Literature Cited

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